



# INSIGHT on Coinage

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EDITORIAL

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Charter subscribers to Insight should recall that any TOO HOT TO HANDLE stories cover subjects which are too controversial or perhaps too self-serving for coverage in the national numismatic press. In the pages of this newsletter, I can tell the entire story, in more detail, as long as it is the truth; without worrying about any coes I might step on, or secrets I choose to reveal. Lately, with the entire story of the "Omega" counterfeit High Relief Coins, new readers have seen exactly what I mean. By the way, there will be more to that story later this year.

In this issue, TOO HOT TO HANDLE will focus on the details behind the x-ray diffraction fiasco during my early days at ANACS. I recently mentioned this case in my monthly column. Shortly thereafter, a Letter to the Editor of Numismatic News appeared which was very complimentary to me and also praised the paper for not editing the column.

The letter writer revealed the name of the person who many would call the "Dean of Experts in Coin Authentication". I know differently. So, while he was alive, I referred to him as "Old Cracked-Eye" - behind his back of course. I purposely choose not to include his name here or in my column since I feel that it's best he be remembered for any of his contributions to the field of authentication rather than for all of the setbacks he caused because of his position of power in the ANA and his reluctance to discuss or learn new ideas contrary to his in spite of the evidence. I owe much to him. He changed from my idol, into an example of what an authentication "expert" should NEVER be. I learned that even the most famous Ex-Perts are often wrong and their opinions should be tested.

A big thanks to Ed Kuszmar for giving the Institute a table at the Annual Baltimore Coin Show. Judging by the collectors in my part of the hall it was very well attended. I was between Krause Publications and Amos Press so there was good reading material and great conversation. I'll be giving a mini-seminar at Ed's show next year.

I want to apologize for the quality of some of the photographs in issue #14, especially the photo used to show heavy die scratches on the Peace Dollar. A photo is worth a thousand words so the printer will do better. I know you'll enjoy this issue, including the pictures!

## TOO HOT TO HANDLE

In my February 18, 1992 column on counterfeit detection, I wrote about little black boxes and x-ray diffraction tests and how they had proved to be worthless for coin authentication. This is the whole story.

When I joined ANACS, the Service had over two dozen dealers who volunteered their time and expertise (for no reward) to help with the authentication of difficult coins. To protect them from harassment, we

kept their identity secret (our consultants were not the kind of people who would advertise that they were consultants to ANACS). During this time, most of the fake coins seen at ANACS were small denomination U.S. gold or Oriental and Spanish American crowns. Most alterations were to make U.S. "key-date" coins. At first, we used our consultants a lot.

One of our consultants was a noted authority in the field of coin authentication and instrumental in getting ANACS started. I saved all the articles he had ever written featuring fakes. As a result of his position of power in the ANA, he insisted that the ANACS Director send all Oriental and Spanish American coins to him for his opinion of their authenticity. He was convinced that x-ray diffraction was a sure-fire method to differentiate struck versus cast coins, so the ANACS Director dutifully paid for the tests that were made on the coins the consultant received. The Ex-Pert also managed to convince a majority of dealers that the counterfeits in the marketplace were extremely deceptive and advanced scientific tests like x-ray diffraction were the only way to detect them! NOTE: It's no wonder so many dealers were scared, confused, and refused to trust their own eyes or instincts. They were being shown two genuine die struck coins and told by an "authority" that one of the coins was a cast counterfeit! Trading in certain coin types almost came to a halt.

Our Ex-Pert had one vociferous critic, Hal Birt Jr., who challenged many of his ideas. Part of their debates about struck versus cast coins revolved around the argument of how much of the detail on a genuine coin would transfer over to a cast fake. This was because one of the methods used to determine if a coin was struck or cast, was to look for the flow lines caused when the planchet metal was squeezed between the dies during striking. These flow lines can best be seen at the edges of larger coins such as Dollars. The accepted teaching was, "coins with metal flow were struck, hence were genuine; while those without any flow lines were not struck with dies and were fakes made by casting". This is a simplistic breakdown of parts of the debates between the two numismatists, but it serves to clarify their positions.

From my vantage point, there was a little bit of truth to both arguments. You see, a good centrifugal casting - one made using a spinning mold in order to tightly compress the "casting charge" into all its tiny crevices - could reproduce metal flow if a fine enough material was used to make the mold. On the other hand, virtually none of the microscopic flow lines of the original (genuine) coin could be reproduced! The photo at right shows metal flow lines in the denticals of a Pillar Dollar.

One day, after this debate had died down, our expert consultant showed up at ANACS with his latest "proof" to the debate. He brought out a latex mold of a Pillar Dollar which actually had large metal flow lines. As he showed the director his "treasure", and they viewed the flow lines with a hand lens, I anxiously awaited my turn. Finally, my chance came.



I sat down at the lab table, placed the mold under the microscope, and started my examination. I was very disappointed at what I saw! The mold had flow lines and looked excellent to the naked eye or when viewed with a 5X hand lens; but under the microscope, its surfaces looked like swiss cheese! I pointed this out to our consultant and also offered my opinion that any coin produced from such a mold would not fool anyone with the least bit of knowledge about fakes. Furthermore, it would have hundreds of tiny raised and rounded pimples where casting metal filled the minute bubble holes left in the mold. Then I asked why he had not used the mold to actually "cast" a fake coin which would provide some real proof for his theories. The Ex-Pert did not appreciate my tactless, yet honest attack; and refused to view the mold using a microscope! All he said was that he needed some money to have an actual coin cast. I begged the Director of ANACS to write a check on the spot so the Ex-Pert would have the money he needed. After all, ANACS had been paying for x-ray tests which I viewed as an unnecessary expense all along. To finish this part of the story, the mold went back into the consultants pocket; never to be seen again. Then months later, when I asked if a casting had ever been made, he ducked the question. Later he claimed to have lost the mold!

One reason I had wanted to see the struck versus cast debate settled revolved around a group of British Trade Dollars which had arrived back at ANACS months before I joined the staff. It seems that this same consultant had used x-ray diffraction tests to prove that about 70% of the coins in the shipment were cast counterfeits. Readers of my column will remember that the owner of the coins had collected Trade Dollars for years and felt that ANACS had made an error when most of the coins were called fakes. He felt we should re-examine his coins. These coins were still sitting in the safe when I was hired so I made them a personal research project so we could at least tell the owner we were working on them!

I had never seen a British Trade Dollar. The coins were beautiful even though many had been cleaned. I really didn't know what I was doing because coin authentication was all new to me at the time. The Director explained "metal flow" on struck coins; "bubbles", "casting gates", and "seams" on casts. He also explained it was unlikely that all the Trade Dollars were fakes but he did not wish to question the x-ray test results or the authority of our consultant! With that knowledge, I went to work.

Many of the coins looked bad under the microscope. Most had been cleaned at one time, so they were grey or corroded, and some of the coins even had fairly large rounded lumps on their surface supposedly caused by holes in the counterfeiters mold (I'll explain more about these in another newsletter). I asked the owner of the coins to return any of his other Trade Dollars which our Ex-Pert ANACS consultant had certified as genuine. Next, I divided the coins into good and bad groups by date and mintmark, and took the specific gravity and measurements of each coin. I tested the tonal quality in the sound of their "ring" and looked at style similarities among the different dates. I told you before that authentication was only a primitive, hit or miss proposition in the "early days"; but this was the initial way I was taught to authenticate coins. We'll call it the "style and measurement school".

My research went slowly, scheduled around other duties. By now, the Director was getting interested, so we traveled to the American Numismatic Society in N.Y.C. to study their coins and also visited the Smithsonian. Patterns were beginning to emerge from our study, so I sent several of the coins to other consultants (major coin dealers) in spite of the standard operating procedures ordered by our Ex-Pert on these coins. To this day,

I will never understand by what authority this man dictated the rules to be followed at ANACS; but as you will see, the times were a'changing.

When the coins were returned and the opinions of all consultants were recorded for each coin, it was a real eye opener. Most opinions on each coin were different; and I could find no rhyme or reason for any of them. There was no pattern. No one knew for sure how to authenticate these coins! Remember, one reason it was so complicated for me and all the others involved was that EVERYONE WAS TRYING TO FIND DIFFERENCES and DIVIDE GENUINE COINS INTO GOOD AND BAD due to the "witch hunt" started by our consultant because of his International reputation as an authority on counterfeit coins!

To finish this story, I trusted my opinions after finding nothing on any of the coins which I examined either in museum collections or from the previously condemned coins which were returned for re-exam. Secretly, without informing our consultant, we returned the coins to their owner as genuine. There were a few coins which we could not say for sure were good or bad. These were changed to "no decision" with the understanding that we would continue our study on Trade Dollars and that the owner should return those coins for reexamination as we became more knowledgeable. That is what I mean when you read about the "learning curve" that every individual must experience. It's also true for each grading or authentication service.

After I determined that the majority of coins were genuine, it was time to attack the x-ray diffraction method because of its near disastrous results and its threat to the credibility of ANACS and the reputation of its authenticators - myself for one! Besides, if I could develop an air-tight case, ANACS could save some money. I had a background in x-ray diffraction practices and had operated one of these machines for almost a year while doing a study of clays as a geologist. In theory, the use of diffraction for coin authentication made sense since one could argue that the atomic structure of the metallic crystals at the surface of a cast coin would be different from that of a struck coin because of the difference in stress due to striking during the minting process. Therefore, I looked into the scientific literature to see what I could discover on this subject. The end of my search came when I read that, years before, both General Motors and the U.S. Treasury Department had determined that x-ray diffraction was not a reliable method to distinguish cast versus struck metal products!

As a result of this experience, while I was at ANACS, we NEVER again relied completely on the opinions of any of our consultants, constantly tested their opinions against our own findings, and dropped those who made too many errors! The Ex-Pert was the first to go. Additionally, since he refused our offer to spend time at ANACS learning coin authentication, we never again sent a coin to him for any reason. We also hid the fact that ANACS still authenticated Oriental and Spanish American coins using other "proven" consultants. Finally, we did our best to track down and correct many other of his mistakes we found on coins sent in previously. As you will read about later, he was not finished meddling with ANACS coins!

#### BETWEEN THE LINES

A great article by Paul Gilkes about coin cleaning and alterations started in the 3/2/92 issue of Coin World. Since my Grading Correspondence Course Lesson #10 this month is on that same subject, I'll add my thoughts and opinions to his column as added information for my students. In Part One of the series, Paul Gilkes writes:

\* "There appears to be no consensus in the numismatic community when it comes to defining standards for the cleaning, dipping, toning and recoloring of coins or otherwise altering a coin's surface and whether such activities are acceptable or constitute an alteration that should be disclosed ..." This is so true. There is hardly a consensus on anything in numismatics. This is because in the past, practically everyone had to learn about all the different aspects of numismatics for themselves! Now collectors can go to excellent reference books (on most subjects) or attend seminars. You would be shocked at what, and how much, many of the older generation of successful coin dealers don't know - plus the amount of mis-information they continue to pass around. Just last week, one dealer confided a "tip" he learned from a prominent "authority" that you could authenticate a particular commemorative half by the amount it rocked on a flat surface! On the same trip I had to explain that perhaps "residue" was not a good word to use to describe toning.

\* "Some individuals interviewed ask whether coin collecting and the preservation of such material should be any different from other hobbies where cleaning, preservation and restoration, such as antiques and classic automobiles, are accepted practices." As with these other pastimes, there are good restorations and real "butcher-jobs". Of course coins should be treated carefully and preserved correctly! Unfortunately, most people who have coins are not qualified to "fool" with them.

\* "Others believe there are no coins with original surfaces, that all have been altered in some form or another." This is pure nonsense. Of course there are 100% original raw coins still out there. Some obvious examples are proofs and many Carson City dollars - it's just that there are not as many original coins as dealers would have you believe. Still, who cares if a coin has been cleaned in the past (so not 100% original); as long as it looks original under magnification! For a discussion of natural and artificial toning, see the January 1991 issue of Insight. A reprint of this back issue is available for \$7.50.

\* "Much of the debate over whether to clean one's coins or to recolor pieces that may have been treated at one time or another hinges on over-all intent." This is another case of trying to play God until finally realizing that we are not qualified. Who cares what the intent was! As long as the coin is preserved, or restored back to a color which it may have naturally acquired over time, I say "good work". I can study the results, the "look", the absence of marks from improper cleaning, etc. and pass judgement. On the other hand, I can not look inside a person's mind to discover his intent except in cases of repairs, etc.

\* "Part of the difficulty in debating the subject [cleaning] at all is coming up with an acceptable definition for cleaning and dipping." No problem, they already exist. BIG PROBLEM, as you'll read later, they do not exist correctly defined in some books where the definitions belong! Mr. Gilkes correctly points out that even the word "cleaning" has taken on a bad connotation when used with coins (because of all of the damage done by improper methods) and so implies the intent to deceive. This causes confusion and also perpetuates the problem. A majority of the time, when a coin is cleaned properly, it's preserved and its appearance is improved. Heavily worn coins are one exception to this because any cleaning usually lowers the contrast of the remaining design on the coin.

The illustration on the right shows how the removal of dirt or toning on a very worn coin has the effect of washing-out parts of its design even more. One half of the Mercury Dime has been "dipped". Cleaning any coin improperly will leave some traces behind either as a discoloration, residue, or an area of surface damage.

before



after



When a coin is "cleaned" in a way to hide it's defects, we are crossing the subtle line into the area of alterations or fraudulent surface treatments. These processes shouldn't be considered true cleaning. There should be few problems identifying either method, but in reality, a lack of knowledge as to what constitutes each treatment still persists. Until many more dealers and Ex-Perts gain this knowledge based on microscopic study of a coins surface, much of the unnecessary debate will continue to postpone the identification and universal meaning of the terms used to describe cleaning. Perhaps, cleaning (both good and bad) should have been discussed in one article and alterations in another because Paul Gilkes appears to know more than many of the professionals he interviews.

NOTE: This is a little off the subject but I'll use the section above to illustrate a point which I also made in TOO HOT TO HANDLE. A reporter interviewing professionals or a rookie authenticator examining the opinions of expert consultants both LEARN from their questions and research as they verify the facts. Over a period of time, by using a large number of reliable sources, they will reach a position of knowledge equal to or greater than all of their consultants. This accelerates their learning curve. Unfortunately, while an authenticator only needs to report one final opinion, the reporter needs to balance his story with the opinions of many. For this reason, nonsense may enter their story (and must be reported) in the guise of expert information! A reason for all the differences in expert opinion is that many taught themselves or used the research of previous numismatists to build on. With the explosion of numismatic knowledge in the last fifteen years, ideas are exposed for discussion and change. For instance, Scott's Comprehensive Catalogue and Encyclopedia of U.S. Coins - 1971 by Don Taxay was a landmark book for its time when compared to the Redbook ; but today, the information on Barber Quarters (slightly more than a page in Taxay) fills a book!

\* "Definitions of cleaning and dipping may differ from book to book." First, let's make sure you all understand a basic fact: cleaning can be either good or bad for a coin; AND it can be either chemical, mechanical, or a combination of both these methods. Once you understand these facts, you can decide which book's definitions are appropriate. To illustrate his point, the author chooses to compare Photograde and the Official ANA Grading Guide. I believe Photograde has the best definitions of those used in the article because the ANA book gives cleaning a bad connotation and incorrectly defines whizzing. One warning about a statement printed from Photograde, a jeweler's brush may often make microscopic hairlines on coins if grit is becomes trapped in its bristles.



Weimar White's comments in this article are terrific. Any of you reading this newsletter who do not read both Coin World AND Numismatic News by now deserve what you don't get!

P.S. Soaking your coins clean, then dipping them in ethyl alcohol to help remove excess water before drying them with hot air is good advice. Please don't wash your coins in anything! "Washing" implies some type of mechanical action and I hate to think what soap and water or anything else will do to your coins. Improper drying ruins as many coins as cleaning. I discuss cleaning in my grading course.

#### MICROSCOPICALLY SPEAKING

Did I goof! In a past issue of Insight, I wrote about whizzing and complained that the definition found in some books which included chemical cleaning was INCORRECT. I showed photographs of a whizzed coin and argued that the technique was mechanical and not chemical. What I neglected to do in that article was to show a micro-photo of a chemically etched coin so that you could make a decision on which definition to accept.

The photographs below show two chemically cleaned coins. Notice the washed-out, appearance of the wing surface and the absence of any scratches. The chemical dulls out the impact damage. The other photo shows a chemical stain marking the edge of its flow. Chemical alterations look completely different from the microphotos of whizzed coins (see Insight, 11/91).



Eagle's wing, rev. Morgan Dollar



Neck of Morgan Dollar

## MARKET NOTES

In my Numismatic News column and in this month's TOO HOT TO HANDLE I've used the word "style" to refer to the "look" of a genuine coin. I've also related that many dealers in foreign and especially ancient coins use a coin's style to pass on its authenticity. There is another subtly different way that "style" is used in numismatics, especially when speaking of coins struck from hand engraved dies. Over time, by a consensus of public opinion, many of the coins, types, or varieties of coins struck with dies made by skilled artists or engravers are said to have "style" or a certain aesthetically pleasing look. Stylish coins are not limited to those struck with hand engraved dies. Beautiful coins made using hubbed dies also exist such as the Gothic Crown (shown below) or St. Gaudens High Relief.

As I said, time has a way of separating good style from bad. Usually there is strong agreement at both extremes as to what is good and what is bad. The area of interpretation exists for coins in the middle. Look at the photographs below. The two coins at left are stylish and aesthetically pleasing while the coins on the right are nothing special to look at.

The style of a coin also affects its value especially with regard to ancients where there are no set prices. Dealers may often price a coin as if it had better than normal style to make a larger profit so it's important for you to learn what good style is; otherwise, you may pay too much for an "average" coin. Auction catalogues are an excellent place to study style since the best coins are often photographed. Your ancient coin dealer can help you learn about style while you are developing your own appreciation of the artistry of coins. Remember to buy what appeals to you, keep an open mind, skeptical attitude, and make sure you pick a dealer with a "good eye".

A trick I've learned which is valid for all fields of collecting is to study the qualities which make something the best of its type, then, try to purchase as close to that quality as you can afford.



## COMING

I'll write more on cleaning and alterations after the second part of Paul Gilkes article appears. It's a major topic for discussion at this time. Next month I plan to finish the "Omega" counterfeit story. It has a surprise ending! Finally, a new group of dangerous ancient coin fakes has surfaced. Numismatic News is holding a column of mine telling how these coins could escape detection because of "good style". More on this later.

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